

IN THE CLAIMS

This listing of claims replaces all prior listings:

1. (Currently Amended) An optical transceiver including:
a light emitting element ~~for converting~~ which converts an electric signal into an optical signal;
a light receiving element ~~for converting~~ which converts ~~an~~ the optical signal into an electric signal ~~for carrying out thereby enabling~~ a single-wire two-way communication by using an optical fiber;
an optical integrated chip in which said light emitting element and said light receiving element are integrally formed on the same chip, and a light emitting section of said light emitting element and a light receiving section of said light receiving element are coplanar closely placed on a surface of said optical integrated chip, and said light receiving section surrounds said light emitting section; and
a circuit board ~~where~~ having a via hole for inserting said optical fiber ~~is formed~~,
wherein,
said optical integrated chip is mounted on one surface of said circuit board at a position where said light emitting section and said light receiving section are fitted into said via hole,
said optical fiber ~~is inserted into~~ extends through said via hole ~~to fix~~ from the other surface of said circuit board to a position where an end surface of said optical fiber is brought into contact with said optical integrated chip, and
said light emitting section and said light receiving section are placed at a distance at which such that a part of each section is ~~fitted in~~ in contact with a diameter portion of a ~~core~~ transversal cross-section of a core of said optical fiber.
2. (Currently Amended) The optical transceiver according to claim 1, wherein an electrode pad to be connected to said optical integrated chip is ~~placed~~ on one surface of said circuit board, and said optical integrated chip is mounted on said circuit board by flip-chip mounting.

3. (Original) The optical transceiver according to claim 1, wherein said via hole is formed by laser beam machining.

4. (Currently Amended) The optical transceiver according to claim 1, wherein a circuit for driving said optical integrated chip is ~~formed~~ on said circuit board.

5. (Cancelled)

6. (Currently Amended) An optical transceiver including:
a light emitting element ~~for converting~~ which converts an electric signal into an optical signal;

a light receiving element ~~for converting~~ which converts an optical signal into an electric signal ~~for carrying out~~ thereby enabling a single-wire two-way communication by using an optical fiber;

an optical integrated chip in which said light emitting element and said light receiving element are integrally formed on the same chip, and a light emitting section of said light emitting element and a light receiving section of said light receiving element are coplanar placed on a surface of said optical integrated chip at a distance at which such that a part of each one of said light emitting section and of said light receiving section is fitted in contact with a diameter portion of a core transversal cross-section of a core of said optical fiber, and said light receiving section formed around said light emitting section;

a circuit board ~~where~~ having a via hole for inserting said optical fiber ~~is formed~~; and

an optical component ~~for separating~~ which separates an optical path from said light emitting section and an optical path to said light receiving section,

wherein,

said optical integrated chip is mounted on one surface of said circuit board at a position where said light emitting section and said light receiving section are fitted into said via hole,

said optical fiber ~~is inserted into~~ extends through said via hole ~~to fix~~ from the other surface of said circuit board to a position where an end surface said optical fiber is brought into contact with the one surface of said optical integrated chip, and

said optical component is ~~placed~~ inside said via hole between said optical integrated chip and said optical fiber, and a first waveguide through which a transmitting light is passed and a second waveguide through which a receiving light is passed are ~~formed~~ between said light emitting section and said light receiving section and an end surface of said optical fiber.

7. (Currently Amended) The optical transceiver according to claim 6, wherein said optical component is a fiber in which a periphery of an inner layer section is covered by an outer layer section whose refractive index is different, and this outer layer section is covered by a total reflection film, and said first waveguide is ~~formed~~ such that said inner layer section is opposite to said light emitting section, and said second waveguide is ~~formed~~ such that said outer layer section is opposite to said light receiving section.

8. (Currently Amended) The optical transceiver according to claim 6, wherein said optical component is a fiber covered by a total reflection film, and said first waveguide is ~~formed~~ such that said optical component is opposite to said light emitting section, and a total reflection film is ~~formed~~ on an inner surface of said via hole, and said second waveguide is ~~formed~~ between said via hole and said optical component.

9. (Currently Amended) The optical transceiver according to claim 6, wherein an electrode pad connected to said optical integrated chip is ~~placed~~ on one surface of said circuit board, and said optical integrated chip is mounted ~~[[as]]~~ by flip-chip mounting on said circuit.

10. (Currently Amended) The optical transceiver according to claim 6, wherein said via hole is ~~opened~~ formed by laser beam machining.

11. (Original) The optical transceiver according to claim 6, wherein a circuit for driving said optical integrated chip is at least formed on said circuit board.

12. (Cancelled)